WEST Search History

Hide Items Restore Clear Cancel

DATE: Monday, April 12, 2004

Hide?	Set Name	Query	Hit Count
		DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI; THES=ASSIGNEE; PLUR=YES; OP=ADJ	
☐	L13	L12 and fischer tropsch	3
☐	L12	L11 and (heat treat$4 or calcin$5)	1014
☐	L11	L10 not l4	4978
☐	L10	iron-based	5450
☐	L9	6716790.pn.	1
☐	L8	L7 and (mechanical strength or break$3 near2 resistance)	60
☐	L7	L6 and synthesis gas	333
☐	L6	L5 and fischer tropsch	417
☐	L5	L4 and (heat treat$4 or calcin$5)	2934
☐	L4	L3 or l1	12413
☐	L3	iron oxid$2 support	31
☐	L2	self-support$3 near2 iron-based catalyst	2
☐	L1	iron near2 catalyst	12392

END OF SEARCH HISTORY

WEST Search History

Hide Items | Restore | Clear | Cancel

DATE: Monday, April 12, 2004

Hide?	**Set Name**	**Query**	**Hit Count**
		DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI; THES=ASSIGNEE; PLUR=YES; OP=ADJ	
☐	L8	L7 and (mechanical strength or break$3 near2 resistance)	60
☐	L7	L6 and synthesis gas	333
☐	L6	L5 and fischer tropsch	417
☐	L5	L4 and (heat treat$4 or calcin$5)	2934
☐	L4	L3 or l1	12413
☐	L3	iron oxid$2 support	31
☐	L2	self-support$3 near2 iron-based catalyst	2
☐	L1	iron near2 catalyst	12392

END OF SEARCH HISTORY

WEST Search History

Hide Items | Restore | Clear | Cancel

DATE: Monday, April 12, 2004

Hide?	Set Name	Query	Hit Count
		DB=PGPB,USPT,USOC; THES=ASSIGNEE; PLUR=YES; OP=ADJ	
☐	L24	L21 and hydrocarbons	0
☐	L23	L21 and synthesis gas	0
☐	L22	l21 and fischer tropsch	0
☐	L21	L18 and temperature	1
☐	L20	L18 and heat treatment	0
☐	L19	L18 and calcination	0
☐	L18	5948722.pn.	1
☐	L17	L16 and l15	1
☐	L16	(iron near1 based catalyst).ti.	29
		DB=PGPB,USPT; THES=ASSIGNEE; PLUR=YES; OP=ADJ	
☐	L15	518/$	3441
☐	L14	518/$1	8
		DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI; THES=ASSIGNEE; PLUR=YES; OP=ADJ	
☐	L13	L12 and fischer tropsch	3
☐	L12	L11 and (heat treat$4 or calcin$5)	1014
☐	L11	L10 not l4	4978
☐	L10	iron-based	5450
☐	L9	6716790.pn.	1
☐	L8	L7 and (mechanical strength or break$3 near2 resistance)	60
☐	L7	L6 and synthesis gas	333
☐	L6	L5 and fischer tropsch	417
☐	L5	L4 and (heat treat$4 or calcin$5)	2934
☐	L4	L3 or l1	12413
☐	L3	iron oxid$2 support	31
☐	L2	self-support$3 near2 iron-based catalyst	2
☐	L1	iron near2 catalyst	12392

END OF SEARCH HISTORY

WEST Search History

Hide Items | Restore | Clear | Cancel

DATE: Monday, April 12, 2004

Hide?	Set Name	Query	Hit Count
	DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI; THES=ASSIGNEE; PLUR=YES; OP=ADJ		
☐	L3	L1 and (heat treat$4 or calcin$5)	8
☐	L2	L1 and (heat treat$4 or calcin$5)	8
☐	L1	unsupport$3 near1 iron near1 catalyst	21

END OF SEARCH HISTORY

```
Connecting via Winsock to STN



Welcome to STN International!  Enter x:x

LOGINID:ssspta1202jxp

PASSWORD:
TERMINAL (ENTER 1, 2, 3, OR ?):2


* * * * * * * * * *   Welcome to STN International   * * * * * * * * * *

 NEWS  1         Web Page URLs for STN Seminar Schedule - N. America
 NEWS  2         "Ask CAS" for self-help around the clock
 NEWS  3  JAN 27  Source of Registration (SR) information in REGISTRY updated
                 and searchable
 NEWS  4  JAN 27  A new search aid, the Company Name Thesaurus, available in
                 CA/CAplus
 NEWS  5  FEB 05  German (DE) application and patent publication number format
                 changes
 NEWS  6  MAR 03  MEDLINE and LMEDLINE reloaded
 NEWS  7  MAR 03  MEDLINE file segment of TOXCENTER reloaded
 NEWS  8  MAR 03  FRANCEPAT now available on STN
 NEWS  9  MAR 29  Pharmaceutical Substances (PS) now available on STN
 NEWS 10  MAR 29  WPIFV now available on STN
 NEWS 11  MAR 29  No connect hour charges in WPIFV until May 1, 2004
 NEWS 12  MAR 29  New monthly current-awareness alert (SDI) frequency in RAPRA

 NEWS EXPRESS  MARCH 31 CURRENT WINDOWS VERSION IS V7.00A, CURRENT
               MACINTOSH VERSION IS V6.0c(ENG) AND V6.0Jc(JP),
               AND CURRENT DISCOVER FILE IS DATED 3 MARCH 2004
 NEWS HOURS    STN Operating Hours Plus Help Desk Availability
 NEWS INTER    General Internet Information
 NEWS LOGIN    Welcome Banner and News Items
 NEWS PHONE    Direct Dial and Telecommunication Network Access to STN
 NEWS WWW      CAS World Wide Web Site (general information)

Enter NEWS followed by the item number or name to see news on that
specific topic.

  All use of STN is subject to the provisions of the STN Customer
  agreement.  Please note that this agreement limits use to scientific
  research.  Use for software development or design or implementation
  of commercial gateways or other similar uses is prohibited and may
  result in loss of user privileges and other penalties.

  * * * * * * * * * * * * * * STN  Columbus  * * * * * * * * * * * * * * *



FILE 'HOME' ENTERED AT 16:08:22 ON 12 APR 2004

=> file caplus
COST IN U.S. DOLLARS                              SINCE FILE     TOTAL
                                                       ENTRY   SESSION
FULL ESTIMATED COST                                     0.21      0.21

FILE 'CAPLUS' ENTERED AT 16:08:29 ON 12 APR 2004
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
```

```
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2004 AMERICAN CHEMICAL SOCIETY (ACS)


Copyright of the articles to which records in this database refer is
held by the publishers listed in the PUBLISHER (PB) field (available
for records published or updated in Chemical Abstracts after December
26, 1996), unless otherwise indicated in the original publications.
The CA Lexicon is the copyrighted intellectual property of the
American Chemical Society and is provided to assist you in searching
databases on STN.  Any dissemination, distribution, copying, or storing
of this information, without the prior written consent of CAS, is
strictly prohibited.

FILE COVERS 1907 - 12 Apr 2004  VOL 140 ISS 16
FILE LAST UPDATED: 11 Apr 2004  (20040411/ED)

  This file contains CAS Registry Numbers for easy and accurate
  substance identification.


=> s unsupport? iron (2a) catalyst
          3694 UNSUPPORT?
        879819 IRON
         11081 IRONS
        880586 IRON
                 (IRON OR IRONS)
            37 UNSUPPORT? IRON
                 (UNSUPPORT?(W)IRON)
        653106 CATALYST
        657398 CATALYSTS
        836661 CATALYST
                 (CATALYST OR CATALYSTS)
L1          16 UNSUPPORT? IRON (2A) CATALYST

=> s l1 and fischer tropsch
         21453 FISCHER
            15 FISCHERS
         21465 FISCHER
                 (FISCHER OR FISCHERS)
          6830 TROPSCH
          6736 FISCHER TROPSCH
                 (FISCHER(W)TROPSCH)
L2           6 L1 AND FISCHER TROPSCH

=> d l2 ibib ab 1-6

L2   ANSWER 1 OF 6  CAPLUS  COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER:         2000:791889  CAPLUS
DOCUMENT NUMBER:          134:6781
TITLE:                    Phase transformations in iron Fischer-
                          Tropsch catalysts during temperature-
                          programmed reduction
AUTHOR(S):                Jin, Yaming; Datye, Abhaya K.
CORPORATE SOURCE:         Center for Microengineered Materials and Department of
                          Chemical and Nuclear Engineering, University of New
                          Mexico, Albuquerque, NM, 87131, USA
SOURCE:                   Journal of Catalysis (2000), 196(1), 8-17
                          CODEN: JCTLA5; ISSN: 0021-9517
PUBLISHER:                Academic Press
DOCUMENT TYPE:            Journal
LANGUAGE:                 English
AB   Temperature-programmed reduction using both carbon monoxide (CO-TPR) and
hydrogen
```

(H2-TPR) was used to study the phase transformations in iron catalysts. High-resolution transmission electron microscopy (HRTEM) and X-ray diffraction (XRD) allowed us to follow the phase transformations in these iron catalysts during TPR. Two catalysts were used, a model supported catalyst with a nonporous silica support and a precipitated catalyst with no support. Under identical CO-TPR conditions, the supported and **unsupported iron catalysts** behaved very differently. For the supported catalyst, three stages of phase transformation could be identified: hematite to magnetite, magnetite to iron carbide, and in the third stage significant carbon deposition accompanying further carburization. No carbide formation or significant carbon deposition was observed in the unsupported Fe catalyst, due to the presence of S impurities in the unsupported catalyst. Most importantly, the results show that carbon deposition occurs in parallel with carbide formation, no carbon being seen in the catalyst that was not carbided. In these catalysts, copper facilitates the reduction of iron oxide, especially the transformation of hematite to magnetite. Segregation of copper from iron oxide causes the hematite to magnetite transformation to shift to higher temps. No interfacial Fe-SiO2 phases could be detected during both CO-TPR and H2-TPR. The major role of the silica support is to prevent the sintering of the Fe phases. (c) 2000 Academic Press.

REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 2 OF 6 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2000:170802 CAPLUS
DOCUMENT NUMBER: 132:224558
TITLE: Activity, selectivity and attrition characteristics of supported iron **Fischer-Tropsch** catalysts
AUTHOR(S): O'Brien, R. J.; Xu, L.; Bao, S.; Raje, A.; Davis, B. H.
CORPORATE SOURCE: Center for Applied Energy Research, University of Kentucky, Lexington, KY, USA
SOURCE: Applied Catalysis, A: General (2000), 196(2), 173-178
CODEN: ACAGE4; ISSN: 0926-860X
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The CO conversion rate and the product selectivities for the conversion of syngas typical of one derived from coal (H2/CO = 0.7) or natural gas (H2/CO = 1.7) are very similar over the range of 30-90% CO conversion levels. For CO conversions up to about 50%, the iron catalyst is as or more productive than a similar mass of supported cobalt catalyst. A supported iron catalyst may exhibit about two-thirds the productivity, on a gram Fe basis, as an unsupported catalyst. Furthermore, whereas the **unsupported iron catalyst** disintegrates within 24 h of synthesis, the supported catalyst retains its integrity during hundreds of hours of slurry phase operation. Silica based catalysts exhibited less disintegration in the CSTR than alumina based catalysts.

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 3 OF 6 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1996:409190 CAPLUS
DOCUMENT NUMBER: 125:90853
TITLE: Unsupported precipitated Fe-Cu-K catalysts used for the slurry **Fischer-Tropsch** synthesis
AUTHOR(S): Zhao, Yu-Long; Zhou, Chuan-Rong; Su, Xiao-Li
CORPORATE SOURCE: Inst. of Coal Chemistry, The Chinese Academy of Sciences, Taiyuan, 030001, Peop. Rep. China
SOURCE: Journal of Natural Gas Chemistry (1996), 5(2), 97-106
CODEN: JGCHE8; ISSN: 1003-9953

PUBLISHER: Chengdu Institute of Organic Chemistry, Academia Sinica
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Unsupported precipitated Fe-Cu-K catalysts were prepared in a continuous precipitation reactor. Effects of precipitation temperature, precipitation pH level and promoters on catalyst performance were examined. The catalysts prepared were in situ activated with lower ratio of synthesis gas by temperature-programmed method. Long life tests at 250-280 °C, 1.5-3.0 MPa, 2-3 L/(g(Fe)-h) and H2/CO=1 gave synthesis gas conversion 54-67%, C1+ yield 113-145 g/m3 synthesis gas, and C5+ yield 77-91 g/m3 synthesis gas. Moessbauer spectra indicated that the content of Haegg carbide increased with running time. Catalyst loss during the withdrawing of wax products from an autoclave is the main factor of reaction performance decay in the latter part of long life test.

L2 ANSWER 4 OF 6 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1992:196581 CAPLUS
DOCUMENT NUMBER: 116:196581
TITLE: Dynamic x-ray diffraction study of an **unsupported iron catalyst** in **Fischer-Tropsch** synthesis
AUTHOR(S): Jung, Heon; Thomson, William J.
CORPORATE SOURCE: Dep. Chem. Eng., Washington State Univ., Pullman, WA, 99164-2710, USA
SOURCE: Journal of Catalysis (1992), 134(2), 654-67
CODEN: JCTLA5; ISSN: 0021-9517
DOCUMENT TYPE: Journal
LANGUAGE: English

AB In situ, dynamic x-ray diffraction was used to correlate changes in bulk catalyst composition with **Fischer-Tropsch** activity over unsupported Fe catalysts. The specific Fe carbide phase formed was a function of particle size and temperature, with ε'-Fe2.2C formed over χ-Fe2.5C for smaller particle sizes and lower temps. While catalytic activity initially increased with the increase in carbide formation, deactivation was coincident with the $\varepsilon' \rightarrow \chi$ Fe carbide transformation. This and subsequent H etching expts. indicated that the C formed from this transformation could act as nucleation sites for subsequent C deposition via the Boudouard reaction. All of the data obtained were consistent with the competition model of **Fischer-Tropsch** synthesis, but while the carbide model did not appear to be a viable mechanism, the carbide itself could act as the catalyst.

L2 ANSWER 5 OF 6 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1981:626342 CAPLUS
DOCUMENT NUMBER: 95:226342
TITLE: The preparation, characterization, and use of **unsupported iron**-cobalt **catalysts** for **Fischer-tropsch** synthesis
AUTHOR(S): Kostka, William Douglas
CORPORATE SOURCE: Purdue Univ., West Lafayette, IN, USA
SOURCE: (1981) 338 pp. Avail.: Univ. Microfilms Int., Order No. 8123669
From: Diss. Abstr. Int. B 1981, 42(5), 1965-6
DOCUMENT TYPE: Dissertation
LANGUAGE: English
AB Unavailable

L2 ANSWER 6 OF 6 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1979:557001 CAPLUS
DOCUMENT NUMBER: 91:157001
TITLE: Multitechnique characterization of **unsupported**

iron ruthenium (FeRu) **catalysts** for
Fischer Tropsch synthesis

AUTHOR(S):	Ott, George Louis
CORPORATE SOURCE:	Purdue Univ., West Lafayette, IN, USA
SOURCE:	(1978) 136 pp. Avail.: Univ. Microfilms Int., Order No. 7914947 From: Diss. Abstr. Int. B 1979, 40(1), 364
DOCUMENT TYPE:	Dissertation
LANGUAGE:	English

AB Unavailable

First Hit Fwd Refs

End of Result Set

☐ Generate Collection Print

L44: Entry 1 of 1 File: USPT Nov 4, 1986

DOCUMENT-IDENTIFIER: US 4621102 A
TITLE: Fischer-Tropsch hydrocarbon synthesis with high surface area Cu and K promoted reduced-carbided iron/manganese spinels

Brief Summary Text (6):
Coprecipitated and/or supported iron-based catalysts, including those containing manganese, are known for producing C.sub.2 -C.sub.4 olefins. Examples of disclosures in the art directed to such iron-manganese catalysts and/or alloys include: W. L. vanDijk, et al., Appl. Catal., 2,273 (1982); Eur. Pat. Appl. 49888 to Ruhrchemie (1981); H. J. Lehman, 73rd AIChe Meeting Paper #103D; W. D. Deckwer, et al., Chem. Ing. Tech., 53 (10), 818 (1981); V. Rao and R. Gormley, Hydrocarbon Processing, 139, November (1981); H. Kolbel and K. Tillmetz, U.S. Pat. No. 4,177,203 (1970); EPO Patent Publication 0,071,770; U.S. Pat. No. 2,605,275; U.S. Pat. No. 2,850,515; Prepr. Div. Pet. Chem. Am. Chem. Soc. (1978) 23(2) pp 513-20; Intersoc. Energy Convers. Eng. Conf. 1978, 13(1) pp 482-6; U.S. Pat. No. 4,186,112; EP 49,888; React. Kinet. Catal. Lett. 1982, 20(1-2) pp 175-80; U.S. Pat. No. 2,778,845; Khim (1) Tekhnol. Topliv i Masel (Russ.) 10(6) 5-10 (1965); UK Patent Appln. 2,050,859 A; German Patent Appln. DT 2919-921; Prace Ustavu Vyzkum Paliv 8, p. 39-81 (1964) (Czech).

Brief Summary Text (9):
U.S. Pat. No. 3,970,738 to Matsui, et al. discloses an iron oxide composition containing a minor amount of manganese oxide and a process for making same. The object of the invention in this disclosure is stated as being able to provide iron oxide products substantially free from manganese compounds as impurities. The upper limit on the manganese component of these iron oxide products is taught and claimed as being less than 0.2 weight percent calculated as MnO. Maiti, et al. in "Iron/Manganese Oxide Catalysts for Fischer-Tropsch Synthesis. Part I: Structural and Textural Changes By Calcination, Reduction and Synthesis", J. Applied Catalysis, v5, p. 151-170 (1983) discloses the use of iron-manganese containing catalysts in a Fischer-Tropsch process to produce olefins. Spinel compositions are suggested as being present in the catalysts used in this reference. This reference does not disclose the use of copper and potassium promoted spinels.

Brief Summary Text (21):
The high surface area catalyst compositions of this invention can be prepared by a process of adding an alpha-hydroxy aliphatic carboxylic acid, e.g., glycolic acid, to an acidic aqueous solution containing dissolved iron and cobalt salts and subsequently evaporating the solution to dryness to yield an amorphous, mixed metal glycolate, which, on calcining at elevated temperature, forms a mixed metal oxide exhibiting a spinel crystal structure and possessing a high surface area. The unsupported high surface area Mn-Fe spinels prepared in this manner possess BET surface areas greater than 30 M.sup.2 /g. Typically the spinels of this invention will have surface areas ranging between about 50-200 M.sup.2 /g.

Brief Summary Text (52):
Although a fixed bed process can be used, a preferred process mode for operating the Fischer-Tropsch process utilizing the catalysts described herein is a slurry-

WEST Search History

Hide Items | Restore | Clear | Cancel

DATE: Monday, April 12, 2004

Hide?	Set Name	Query	Hit Count
	DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI; THES=ASSIGNEE; PLUR=YES; OP=ADJ		
☐	L61	L58 and annealing and hour	1
☐	L60	L58 and (calcin$5 or heat treat$5)	0
☐	L59	L58 and (calcin$5 or heat treat$5)	0
☐	L58	L56 and iron based catalyst	2
☐	L57	L56 and iron base catalyst	0
☐	L56	5763716.pn.	2
☐	L55	L52 and break$3	0
☐	L54	L52 and attrition	0
☐	L53	L52 and calcin$5	0
☐	L52	5504118.pn.	2
☐	L51	L46 and temperature	1
☐	L50	L46 and breakage	0
☐	L49	L46 and resistance	0
☐	L48	L46 and heat treatment	0
☐	L47	L46 and calcin$5	0
☐	L46	L45 and iron based cataLYST	2
☐	L45	5324335.pn.	2
☐	L44	L40 and catalyst fines	1
☐	L43	L40 and breakage	0
☐	L42	L40 and attrition	0
☐	L41	l40 and resistance	0
☐	L40	L39 and calcin$5	1
☐	L39	L38 and iron based catalyst	1
☐	L38	4621102.pn.	2
☐	L37	L34 and heat treatment	0
☐	L36	L34 and annealing	0
☐	L35	L34 and calcin$5	0
☐	L34	L33 and iron based catalyst	2
☐	L33	5645613.pn.	2
☐	L32	l31 and iron based catalyst	0
☐	L31	L30 and calcin$5	1

☐	L30	5545674.pn.	2
☐	L29	L28 and calcin$5	1
☐	L28	L27 and iron based catalyst	1
☐	L27	5118715.pn.	2
☐	L26	l25 and calcin$5	0
☐	L25	L24 and annealing	1
☐	L24	5324335.pn.	2
☐	L23	L19 and calcin$4	0
☐	L22	l19 and annealing	0
☐	L21	L19 and annealing	0
☐	L20	L19 and breakage	0
☐	L19	L18 and iron based catalyst	1
☐	L18	5504118.pn.	2
☐	L17	L7 and calcin$5	0
☐	L16	L7 and calcin$4	0
☐	L15	L7 and break$4	0
☐	L14	L7 and break$4	0
☐	L13	L7 and fines	0
☐	L12	L7 and fine near2 particles	0
☐	L11	l7 and strength	0
☐	L10	L7 and attrition	0
☐	L9	l7 and resistance	0
☐	L8	l7 and breakage	0
☐	L7	L6 and annealing	1
☐	L6	L5 and iron based catalyst	2
☐	L5	5763716.pn.	2
☐	L4	5324335.pn.	2
☐	L3	L1 and (heat treat$4 or calcin$5)	8
☐	L2	L1 and (heat treat$4 or calcin$5)	8
☐	L1	unsupport$3 near1 iron near1 catalyst	21

END OF SEARCH HISTORY

```
Connecting via Winsock to STN



Welcome to STN International!  Enter x:x

LOGINID:ssspta1202jxp


Connecting via Winsock to STN



Welcome to STN International!  Enter x:x

LOGINID:ssspta1202jxp

PASSWORD:
TERMINAL (ENTER 1, 2, 3, OR ?):2


* * * * * * * * * *   Welcome to STN International   * * * * * * * * * *

 NEWS  1            Web Page URLs for STN Seminar Schedule - N. America
 NEWS  2            "Ask CAS" for self-help around the clock
 NEWS  3  JAN 27  Source of Registration (SR) information in REGISTRY updated
                  and searchable
 NEWS  4  JAN 27  A new search aid, the Company Name Thesaurus, available in
                  CA/CAplus
 NEWS  5  FEB 05  German (DE) application and patent publication number format
                  changes
 NEWS  6  MAR 03  MEDLINE and LMEDLINE reloaded
 NEWS  7  MAR 03  MEDLINE file segment of TOXCENTER reloaded
 NEWS  8  MAR 03  FRANCEPAT now available on STN
 NEWS  9  MAR 29  Pharmaceutical Substances (PS) now available on STN
 NEWS 10  MAR 29  WPIFV now available on STN
 NEWS 11  MAR 29  No connect hour charges in WPIFV until May 1, 2004
 NEWS 12  MAR 29  New monthly current-awareness alert (SDI) frequency in RAPRA

 NEWS EXPRESS  MARCH 31 CURRENT WINDOWS VERSION IS V7.00A, CURRENT
               MACINTOSH VERSION IS V6.0c(ENG) AND V6.0Jc(JP),
               AND CURRENT DISCOVER FILE IS DATED 3 MARCH 2004
 NEWS HOURS    STN Operating Hours Plus Help Desk Availability
 NEWS INTER    General Internet Information
 NEWS LOGIN    Welcome Banner and News Items
 NEWS PHONE    Direct Dial and Telecommunication Network Access to STN
 NEWS WWW      CAS World Wide Web Site (general information)

Enter NEWS followed by the item number or name to see news on that
specific topic.

  All use of STN is subject to the provisions of the STN Customer
  agreement.  Please note that this agreement limits use to scientific
  research.  Use for software development or design or implementation
  of commercial gateways or other similar uses is prohibited and may
  result in loss of user privileges and other penalties.

  * * * * * * * * * * * * * STN Columbus * * * * * * * * * * * * * * *
```

```
FILE 'HOME' ENTERED AT 15:25:53 ON 12 APR 2004

=> file caplus
COST IN U.S. DOLLARS                             SINCE FILE      TOTAL
                                                      ENTRY    SESSION
FULL ESTIMATED COST                                    0.21       0.21

FILE 'CAPLUS' ENTERED AT 15:26:05 ON 12 APR 2004
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2004 AMERICAN CHEMICAL SOCIETY (ACS)


Copyright of the articles to which records in this database refer is
held by the publishers listed in the PUBLISHER (PB) field (available
for records published or updated in Chemical Abstracts after December
26, 1996), unless otherwise indicated in the original publications.
The CA Lexicon is the copyrighted intellectual property of the
American Chemical Society and is provided to assist you in searching
databases on STN.  Any dissemination, distribution, copying, or storing
of this information, without the prior written consent of CAS, is
strictly prohibited.

FILE COVERS 1907 - 12 Apr 2004  VOL 140 ISS 16
FILE LAST UPDATED: 11 Apr 2004  (20040411/ED)

  This file contains CAS Registry Numbers for easy and accurate
  substance identification.


=> s iron (2a) catalyst
        879819 IRON
         11081 IRONS
        880586 IRON
                 (IRON OR IRONS)
        653106 CATALYST
        657398 CATALYSTS
        836661 CATALYST
                 (CATALYST OR CATALYSTS)
L1       25801 IRON (2A) CATALYST

=> s iron oxid? (1a) support
        879819 IRON
         11081 IRONS
        880586 IRON
                 (IRON OR IRONS)
       2589386 OXID?
         87610 IRON OXID?
                 (IRON(W)OXID?)
        381988 SUPPORT
        106717 SUPPORTS
        453774 SUPPORT
                 (SUPPORT OR SUPPORTS)
L2         122 IRON OXID? (1A) SUPPORT

=> s self support? (2a) iron based catalyst
        286909 SELF
            23 SELFS
            33 SELVES
        286958 SELF
                 (SELF OR SELFS OR SELVES)
        653430 SUPPORT?
          3340 SELF SUPPORT?
```

```
                  (SELF(W)SUPPORT?)
         879819 IRON
          11081 IRONS
         880586 IRON
                  (IRON OR IRONS)
        1601814 BASED
         653106 CATALYST
         657398 CATALYSTS
         836661 CATALYST
                  (CATALYST OR CATALYSTS)
            302 IRON BASED CATALYST
                  (IRON(W)BASED(W)CATALYST)
L3            0 SELF SUPPORT? (2A) IRON BASED CATALYST

=> s self-support? (2a) iron-based catalyst
         286909 SELF
             23 SELFS
             33 SELVES
         286958 SELF
                  (SELF OR SELFS OR SELVES)
         653430 SUPPORT?
           3340 SELF-SUPPORT?
                  (SELF(W)SUPPORT?)
         879819 IRON
          11081 IRONS
         880586 IRON
                  (IRON OR IRONS)
        1601814 BASED
         653106 CATALYST
         657398 CATALYSTS
         836661 CATALYST
                  (CATALYST OR CATALYSTS)
            302 IRON-BASED CATALYST
                  (IRON(W)BASED(W)CATALYST)
L4            0 SELF-SUPPORT? (2A) IRON-BASED CATALYST

=> d his

     (FILE 'HOME' ENTERED AT 15:25:53 ON 12 APR 2004)

     FILE 'CAPLUS' ENTERED AT 15:26:05 ON 12 APR 2004
L1        25801 S IRON (2A) CATALYST
L2          122 S IRON OXID? (1A) SUPPORT
L3            0 S SELF SUPPORT? (2A) IRON BASED CATALYST
L4            0 S SELF-SUPPORT? (2A) IRON-BASED CATALYST

=> s l2 or l1
L5        25856 L2 OR L1

=> s l5 and (heat (1a) treat? or calcin?)
        1158332 HEAT
          51724 HEATS
        1170922 HEAT
                  (HEAT OR HEATS)
        3022181 TREAT?
         209030 HEAT (1A) TREAT?
          90426 CALCIN?
L6         1781 L5 AND (HEAT (1A) TREAT? OR CALCIN?)

=> s l6 and fischer tropsch
          21453 FISCHER
             15 FISCHERS
          21465 FISCHER
                  (FISCHER OR FISCHERS)
         6830 TROPSCH
         6736 FISCHER TROPSCH
                (FISCHER(W)TROPSCH)
L7        106 L6 AND FISCHER TROPSCH

=> s l7 and synthesis gas
      1114940 SYNTHESIS
            3 SYNTHESISES
        61404 SYNTHESES
      1149806 SYNTHESIS
                (SYNTHESIS OR SYNTHESISES OR SYNTHESES)
      1351728 GAS
       466512 GASES
      1519377 GAS
                (GAS OR GASES)
        14316 SYNTHESIS GAS
                (SYNTHESIS(W)GAS)
L8         24 L7 AND SYNTHESIS GAS

=> d l8 ibib ab 1-24

L8   ANSWER 1 OF 24  CAPLUS  COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER:         2002:115912  CAPLUS
DOCUMENT NUMBER:          136:403943
TITLE:                    Attrition resistance of spray-dried iron F-T
                          catalysts: Effect of activation conditions
AUTHOR(S):                Zhao, Rong; Sudsakorn, Kandis; Goodwin, James G.;
                          Jothimurugesan, K.; Gangwal, Santosh K.; Spivey, James
                          J.
CORPORATE SOURCE:         Department of Chemical and Petroleum Engineering,
                          University of Pittsburgh, Pittsburgh, PA, 15261, USA
SOURCE:                   Catalysis Today (2002), 71(3-4), 319-326
                          CODEN: CATTEA; ISSN: 0920-5861
PUBLISHER:                Elsevier Science B.V.
DOCUMENT TYPE:            Journal
LANGUAGE:                 English
AB   The focus of the research was to study the effects of phase changes, as
     occur during Fe catalyst activation and Fischer-Tropsch
     synthesis, on Fe catalyst attrition resistance.  Different activation
     conditions (CO, H2 or syngas) were applied prior to attrition testing to a
     selected spray-dried Fe catalyst containing 9.1 weight% binder SiO2, which had
     been shown to have the highest attrition resistance in the early study of
     calcined catalysts.  Although, XRD indicated that different Fe
     phase compns. resulted in the differently activated catalyst samples,
     chemical attrition was not observed for any of the samples.  The BET surface
     areas of the activated samples were smaller than that of the
     calcined precursor but no significant changes in pore volume and
     particle size were found.  The attrition resistances of the differently
     activated catalyst samples are similar to that of the calcined
     catalyst for this spray-dried Fe catalyst.  Attrition resistance was found
     previously to be governed by catalyst particle d., which was shown earlier
     to relate to the SiO2 network in catalysts.  It is therefore suggested
     that the type and concentration of SiO2 that is incorporated during the
preparation of
     spray-dried Fe catalysts have a much more significant impact on catalyst
     attrition than Fe phase change during activation in the presence of CO, H2
     or H2 + CO.
REFERENCE COUNT:          19    THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS
                                RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8   ANSWER 2 OF 24  CAPLUS  COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER:         1999:607807  CAPLUS
DOCUMENT NUMBER:          131:259700
TITLE:                    The effect of sulfide ions on a precipitated
```

iron Fischer-Tropsch
catalyst

AUTHOR(S): Bromfield, T. C.; Coville, N. J.

CORPORATE SOURCE: Department of Chemistry, Centre for Applied Chemistry and Chemical Technology, University of the Witwatersrand, Johannesburg, 2050, S. Afr.

SOURCE: Applied Catalysis, A: General (1999), 186(1,2), 297-307
CODEN: ACAGE4; ISSN: 0926-860X

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A new range of sulfided **iron catalysts** was synthesized by adding small amts. of Na2S (500-20,000 ppm) to precipitated **iron catalysts**. The new materials after **calcination** (400°, 16 h) and reduction (400°, 16 h) were subjected to **synthesis gas** (2:1 H2-CO) at 250° at 8 bars for up to 8 days. Catalysts with low sulfide concns. were up to four times more active in the **Fischer-Tropsch** reaction than a sulfur-free catalyst, whereas catalysts with high sulfide loadings were apparently poisoned. Increased olefin-paraffin ratios were also obtained at the low sulfide loadings. The new sulfided materials were studied by a combination of BET, DRIFTS, XRD, TPR, and SEM; the surface area and reducibility of the **iron catalyst** were affected by the presence of S2- ions and SO42- acted as a promoter in the **Fischer-Tropsch** reaction.

REFERENCE COUNT: 64 THERE ARE 64 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 3 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1996:701597 CAPLUS

DOCUMENT NUMBER: 125:333915

TITLE: **Fischer-Tropsch catalysts** containing **iron** and cobalt

INVENTOR(S): Espinoza, Rafael Luis; Visagie, Jacobus Lucas; Van Berge, Peter Jacobus; Bolder, Frandiscus Hermanus

PATENT ASSIGNEE(S): Sastech Proprietary Ltd., S. Afr.

SOURCE: Eur. Pat. Appl., 21 pp.
CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 736326	A1	19961009	EP 1996-302437	19960404
EP 736326	B1	20010808		
R: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE				
US 5733839	A	19980331	US 1996-631658	19960402
NO 9601387	A	19961008	NO 1996-1387	19960403
ZA 9602759	A	19961007	ZA 1996-2759	19960404
CA 2173515	AA	19961008	CA 1996-2173515	19960404
CA 2173515	C	20000523		
AU 9650500	A1	19961017	AU 1996-50500	19960404
AU 694010	B2	19980709		
AT 203929	E	20010815	AT 1996-302437	19960404
ES 2160211	T3	20011101	ES 1996-302437	19960404
PT 736326	T	20011228	PT 1996-96302437	19960404
RU 2165789	C2	20010427	RU 1996-107411	19960405
GR 3036807	T3	20020131	GR 2001-401670	20011004

PRIORITY APPLN. INFO.: ZA 1995-2903 A 19950407

AB A process for preparing a **Fischer-Tropsch** catalyst comprises subjecting a slurry comprising a particulate alumina carrier, water and an active component selected from the group consisting of cobalt, iron and mixts. thereof, to a subatm. pressure environment. The alumina carrier is thereby impregnated with the active component. The impregnated carrier is dried under a subatm. pressure environment. The dried impregnated carrier is **calcined**, thereby to obtain the **Fischer-Tropsch** catalyst.

L8 ANSWER 4 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1995:569032 CAPLUS
DOCUMENT NUMBER: 123:13318
TITLE: Pretreatment effect studies with a precipitated **iron Fischer-Tropsch catalyst**
AUTHOR(S): Bukur, Dragomir B.; Koranne, Manoj; Lang, Xiaosu; Rao, K. R. P. M.; Huffman, Gerald P.
CORPORATE SOURCE: Department of Chemical Engineering, Kinetics, Catalysis and Chemical Reaction Engineering Laboratory, Texas A and M University, College Station, TX, 77843-3122, USA
SOURCE: Applied Catalysis, A: General (1995), 126(1), 85-113
CODEN: ACAGE4; ISSN: 0926-860X
PUBLISHER: Elsevier
DOCUMENT TYPE: Journal
LANGUAGE: English

AB A doubly promoted precipitated **iron catalyst** (100:0.3:0.8 weight ratio Fe-Cu-K) was characterized after different pretreatment conditions and after **Fischer-Tropsch** (FT) synthesis in a fixed-bed reactor. The BET surface area of the catalyst decreased markedly after pretreatment with H2, CO, and **synthesis gas** (0.67:1 and 2:1 H2-CO). **Calcined** catalyst was in the form of α-Fe2O3, which was converted to either metallic iron (α-Fe) or a mixture of α-Fe and Fe3O4 after H2 redns. During FT synthesis the α-Fe was carburized to iron carbides (χ-carbide or ε'-carbide) or oxidized to Fe3O4. After CO or syngas pretreatments, the χ-carbide was the most dominant phase. During FT synthesis, this carbide was partially or completely converted to ε'-carbide, Fe3O4, and/or FeCO3. H2 reduction resulted in stable or increasing catalyst activity with time on stream and the reduction conditions had a strong effect on the subsequent catalyst activity. The CO- and syngas-pretreated catalysts deactivated with time. The H2-reduced catalysts produced more CH4 and gaseous hydrocarbons than the CO- or syngas-pretreated catalysts, and favored secondary hydrogenation and isomerization reactions.

L8 ANSWER 5 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1995:369887 CAPLUS
DOCUMENT NUMBER: 123:60908
TITLE: Surface area and porosity changes in **iron catalysts** during activation and initial use in the **Fischer-Tropsch** synthesis
AUTHOR(S): Milburn, Diane R.; O'Brien, Robert J.; Chary, Komandur; Davis, Burtron H.
CORPORATE SOURCE: Center Applied Energy Research, University Kentucky, Lexington, KY, 40511-8433, USA
SOURCE: Studies in Surface Science and Catalysis (1994), 87(Characterization of Porous Solids III), 753-61
CODEN: SSCTDM; ISSN: 0167-2991
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The impact on **iron Fischer-Tropsch catalysts** of the variables controlling the initial precipitation, subsequent aging and drying conditions has been detailed. **Heat treatment** of iron oxyhydroxides causes the surface area to decrease and the major pore size to increase as the temperature increases, both in air and in an inert atmospheric A shift toward higher temperature stability is seen for the same iron oxyhydroxide when co-precipitated with 6% Al2O3, SiO2, or ZrO2.

Samples for characterization are withdrawn from the reactor at increasing time intervals during pretreatment and exposure to **synthesis gas**. Surface area decrease and pore size increase are also observed during pretreatment with CO at 260°C and 100 psi. and during the initial days of reaction under CO/H2. The major changes appear to occur during pretreatment and in the very early stages of the reaction. The effects of added promoter(s) also impact the area and/or porosity of the materials. The area and pore size distributions have shown systematic changes during increasing exposure to **synthesis gas**.

L8 ANSWER 6 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1995:300771 CAPLUS
DOCUMENT NUMBER: 122:59842
TITLE: Effect of pre-**heat treatment** on a **Fischer-Tropsch iron catalyst**
AUTHOR(S): Rao, K. R. P. M.; Huggins, Frank E.; Ganguly, Bhaswati; Mahajan, Vikram; Huffman, Gerald P.; Davis, Burton; O'Brien, Robert J.; Xu, Liguang; Rao, V. U. S.
CORPORATE SOURCE: Institute of Mining and Minerals Research, Univ. of Kentucky, Lexington, KY, 40506, USA
SOURCE: Hyperfine Interactions (1994), 93(1-4), 1755-8
CODEN: HYINDN; ISSN: 0304-3843
PUBLISHER: Baltzer
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Moessbauer spectroscopy was used to investigate the effect of heating of co-precipitated 100:5:4.2:24 Fe-Cu-K-SiO2 **Fischer-Tropsch** catalyst in He and in 0.7:1 H-CO, while ramping the temperature of the catalyst from room temperature to 280 ° in 5.5 h prior to pretreatment of the catalyst. Preheating in 0.7:1 H2-CO gave rise to an Fe2+ silicate, whereas preheating in He resulted in the formation of ε'-carbide, F2.2C. Iron oxides and χ-carbide Fe5C2 were also formed in both preheat treatments.

L8 ANSWER 7 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1992:132561 CAPLUS
DOCUMENT NUMBER: 116:132561
TITLE: Process for the preparation of alumina-based extrudates
INVENTOR(S): Joustra, Annie Hendrika; Scheffer, Bob
PATENT ASSIGNEE(S): Shell Internationale Research Maatschappij B. V., Neth.
SOURCE: Eur. Pat. Appl., 11 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 455307	A1	19911106	EP 1991-201047	19910502
EP 455307	B1	19940810		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE				
AU 9176057	A1	19911107	AU 1991-76057	19910429
AU 649249	B2	19940519		
SU 1836146	A3	19930823	SU 1991-4895384	19910430
CA 2041686	AA	19911105	CA 1991-2041686	19910502

CA 2041686	C	20011016		
NO 9101719	A	19911105	NO 1991-1719	19910502
ZA 9103304	A	19920129	ZA 1991-3304	19910502
JP 04227847	A2	19920817	JP 1991-128251	19910502
JP 3248925	B2	20020121		
ES 2059035	T3	19941101	ES 1991-201047	19910502
CN 1056069	A	19911113	CN 1991-102770	19910503
CN 1030898	B	19960207		

PRIORITY APPLN. INFO.: GB 1990-10075 A 19900504

AB A process for the preparation of an alumina-based extrudate suitable for use in the manufacture of a catalyst comprises (1) preparing an extrudable mixture containing alumina precursor, a Co, Fe or Ni source, and a solvent, (2) extruding the mixture, and (3) drying the formed extrudate. The extrudable mixture may optionally contain a promoter source. Alternatively, a promoter source may be deposited on the resulting extrudate. A catalyst is prepared by **calcination** of the resulting extrudate, which catalyst is useful in the preparation of C_5+ hydrocarbons from MeOH or a CO-H_2 gas mixture in **Fischer-Tropsch** reactions.

L8 ANSWER 8 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1991:517502 CAPLUS

DOCUMENT NUMBER: 115:117502

TITLE: Moessbauer spectroscopic study of the promoter effects of silicon on precipitated **iron catalyst** for F-T synthesis

AUTHOR(S): Huang, Zhier; Zeng, Yiwei; Li, Zhe; Zhang, Zhixin; Wang, Dingzhu

CORPORATE SOURCE: Inst. Coal Chem., Chin. Acad. Sci., Taiyuan, Peop. Rep. China

SOURCE: Ranliao Huaxue Xuebao (1991), 19(1), 35-40
CODEN: RHXUD8; ISSN: 0253-2409

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

AB Results from Moessbauer spectroscopy, used to study precipitated Fe **Fischer-Tropsch** catalysts, suggested a strong effect of Si promoter on Fe particle size as well as evidence for Fe-Si interactions, which lead to a change in the chemical state of Fe during **calcination**, reduction, and carburization. At room temperature, the **calcined** Fe-Cu-K catalyst consists mainly of α-Fe_2O_3, but the Fe-Cu-K-Si catalyst contains 60% superparamagnetic Fe^{3+} and 22% Fe_3O_4, with a 1.30:1 ratio of interface Fe^{3+} to bulk Fe^{3+}. After reduction and carburization in H and 2:1 H-CO, the Fe phase of the Fe-Cu-K catalyst was completely changed to α-Fe and stable carbide x-Fe_2C_5. After reduction of the Si-containing catalyst under the same conditions, the composition was α-Fe 14, Fe_3O_4 11, Fe^{2+} 4.5, and Fe^{3+} 69.9%, and the ratio of interface Fe^{3+} and bulk Fe^{3+} decreased to 0.43:1. Carburization of the Si-containing catalyst in **synthesis gas** converted 75% of the Fe to x-Fe_2C_5, with 25% of Fe^{3+} remaining unreacted.

L8 ANSWER 9 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1989:233567 CAPLUS

DOCUMENT NUMBER: 110:233567

TITLE: Study on the chemical state of **iron catalysts** for **Fischer-Tropsch** synthesis

AUTHOR(S): Huang, Zhier; Li, Zhe

CORPORATE SOURCE: Inst. Coal Chem., Acad. Sin., Taiyuan, Peop. Rep. China

SOURCE: Ranliao Huaxue Xuebao (1988), 16(4), 313-20
CODEN: RHXUD8; ISSN: 0253-2409

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

AB The chemical state of fused, precipitated, and γ-Al_2O_3-supported Fe catalysts for **Fischer-Tropsch** synthesis under different stages of **calcination**, reduction, and carburization was studied by Moessbauer spectroscopy. At room temperature the **calcined** fused and precipitated Fe catalysts consisted of bulk phase Fe3O4 and α-Fe2O3. After reduction and carburization in H and **synthesis gas** (H-CO = 2), the Fe phase was completely changed to α-Fe and stable Hagg's carbide χ-Fe5C2. The **calcined** Fe-Al2O3 catalyst was composed of Fe3+ strongly interacting with Al2O3 and 49% bulk α-Fe2O3. After reduction in H at 450°, the catalyst contained .apprx.56% α-Fe, 30% Fe3+, and 14% FeAl2O4. Carburization of the reduced supported catalyst at 270° in **synthesis gas** converted .apprx.84% Fe to χ-Fe5C2 and 11% α-Fe and 4% Fe3+ remained. Evidence for Fe-promoter and Fe-support interactions were obtained. These interactions changed the chemical state and Moessbauer hyperfine parameters.

L8 ANSWER 10 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1987:579978 CAPLUS
DOCUMENT NUMBER: 107:179978
TITLE: Method for the digestion-precipitation of high activity catalysts
INVENTOR(S): Desmond, Michael J.; Pepera, Marc A.
PATENT ASSIGNEE(S): Standard Oil Co., USA
SOURCE: U.S., 5 pp. Cont.-in-part of U.S. Ser. No. 679,094, abandoned.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4686203	A	19870811	US 1985-747585	19850624
PRIORITY APPLN. INFO.:			US 1983-504717	19830615
			US 1984-679094	19841206

AB A metal oxide catalyst, useful in the **Fischer-Tropsch** synthesis, is prepared by (1) dissolving ≥1 Fe salt and a salt of a Group IB (11) metal in a polar organic solvent to form a solution, (2) adding a precipitating agent to form a metal precipitate that is thermally decomposable to the oxide, (3) separating the precipitate from the polar organic solvent, and (4) drying and **calcining** the precipitate to form the metal oxide catalyst. A 1:1 CO-H mixture was contacted with a **Fischer-Tropsch** catalyst containing 5:1:1 ratio Fe-Cu-kieselguhr (surface area 76.6 m2/g, prepared by slow digestion and precipitation with K2CO3 in EtOH) at 215°, 150 psi, and 300 h-1 gas space velocity for 299 min, resulting in 0.269 g organic liquid/h, compared with 0.162 g organic liquid/h from a similar catalyst prepared by fast precipitation with KOH in EtOH.

L8 ANSWER 11 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1987:53062 CAPLUS
DOCUMENT NUMBER: 106:53062
TITLE: Iron on mixed zirconia-titania substrate **Fischer-Tropsch** catalyst
INVENTOR(S): Dyer, Paul N.; Nordquist, Andrew F.; Pierantozzi, Ronald
PATENT ASSIGNEE(S): Air Products and Chemicals, Inc., USA
SOURCE: U.S., 6 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4624942	A	19861125	US 1985-752203	19850703
US 4652587	A	19870324	US 1986-875803	19860618
ZA 8604912	A	19880330	ZA 1986-4912	19860702
AU 8659725	A1	19870319	AU 1986-59725	19860703
AU 561886	B2	19870521		

PRIORITY APPLN. INFO.: US 1985-752203 19850703

AB A **Fischer-Tropsch** catalyst for the selective conversion of **synthesis gas** to liquid hydrocarbons contains a mixture of ZrO2 and TiO2 (preferably formed by co-precipitation), surface deposited or interdispersed with Fe or Fe oxide, and <10 weight% alkali metal compds. The catalyst is prepared by co-precipitation of ZrO2/TiO2 precursors, drying and **calcining** the resulting mixture, impregnation or co-precipitation of an Fe precursor, and drying and **calcining** the catalyst in an O-containing atmospheric or air to convert the Fe precursor to Fe oxide. A 1.06:1 (mol ratio) CO-H mixt was passed over Fe2O3-ZrO2-TiO2 catalyst at 257°, 300 psig, and 554 h-1 gas space velocity; the conversion to diesel-range C9-25 and C>26 hydrocarbons were 58.35 weight% and 1.74 weight%, resp.

L8 ANSWER 12 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1986:629690 CAPLUS
DOCUMENT NUMBER: 105:229690
TITLE: Catalyst for selective conversion of **synthesis gas**
INVENTOR(S): Dyer, Paul N.; Pierantozzi, Ronald
PATENT ASSIGNEE(S): Air Products and Chemicals, Inc., USA
SOURCE: U.S., 8 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4619910	A	19861028	US 1985-741403	19850605
US 4670472	A	19870602	US 1986-862744	19860513
US 4681867	A	19870721	US 1986-862844	19860513
AU 8658206	A1	19870129	AU 1986-58206	19860530
AU 561323	B2	19870507		
ZA 8604159	A	19880224	ZA 1986-4159	19860604
AU 589003	B2	19890928	AU 1987-72548	19870506
AU 8772548	A1	19871126		
ZA 8703380	A	19890125	ZA 1987-3380	19870512

PRIORITY APPLN. INFO.: US 1985-741403 19850605
US 1986-862844 19860513

OTHER SOURCE(S): CASREACT 105:229690

AB A selective and stable **Fischer-Tropsch** catalyst for the manufacture of higher hydrocarbons (e.g., of relatively narrow C range) from CO-rich **synthesis gas** is prepared by treating an inert carrier with a Group IVB metal compound (especially an alkoxide), and impregnating the treated carrier with a decomposable metal catalyst (e.g., Co, Fe, or Ru carbonyls). Reactions with air (oxidation) and water (hydrolysis) and **calcination** are specifically avoided in the catalyst preparation procedure. A 1.98:1 (mol ratio) CO-H mixture was passed over a [Co2(CO)8 + Zr(OPr)4]/Al2O3 catalyst (prepared in the absence of O or water, 11.87:6.22 Zr-Co weight ratio) at 250°, 302 psig, and 348.3 h-1 gas space velocity; an overall (CO + H) conversion of 26.6% was observed after 193.3 h, with 28.77 weight% and 33.5 weight% selectivities, resp., to C12-17 and C≥18 products; the overall selectivity to C9-25 diesel-range product was 72.2 weight%.

L8 ANSWER 13 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1986:614572 CAPLUS
DOCUMENT NUMBER: 105:214572
TITLE: Low-nitrogen iron-containing **Fischer-Tropsch** catalyst for conversion of **synthesis gas**
INVENTOR(S): Bell, Weldon K.; Haag, Werner O.; Kirker, Garry W.; Klocke, Donald J.
PATENT ASSIGNEE(S): Mobil Oil Corp., USA
SOURCE: U.S., 7 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4617288	A	19861014	US 1984-687695	19841231
US 4686313	A	19870811	US 1986-869649	19860602

PRIORITY APPLN. INFO.: US 1984-687695 19841231

AB In preparing an Fe-containing **Fischer-Tropsch** catalyst, an improved catalyst containing <500 ppm N is made by continuous precipitation from an aqueous solution containing Fe nitrate with aqueous NH3 at pH 6.5-6.9 and 70-100°. Promoter metals for the catalyst are selected from Co, Mo, Al, Pd, Cr, Zn, Cu and/or alkali metals. Thus, Fe(NO3)3.9H2O 16.5 kg was added to deionized H2O 42 L. Cu(NO3)2.2.5H2O 20 g in deionized H2O 200 mL was added. The resultant solution was heated to .apprx.80 and placed in a vessel A. An aqueous NH3 solution was prepared by adding 10.1 kg of a concentrate aqueous NH3 solution (29.6 weight% NH3) to deionized H2O 110 kg; the solution was placed in a vessel B. The Fe solution was pumped from A to a solution preheater at .apprx.200-300 cm3/min. Aqueous NH3 was pumped from B to a solution preheater at .apprx.500-600 cm3/min. The preheated solns. were combined in a mixing nozzle and passed into a continuous precipitation apparatus The reactor effluent was maintained at .apprx.70-80° and the pH was 6.8 ± 0.1. After washing with HNPh2, the filter cake was reduced to a wet cake containing H2O 15 weight%; the wet cake was slurried with 580 mL of an aqueous solution containing K2CO3 8 g/L. The slurry was dried at 110°, crushed to less than a mesh size of 8 and **calcined** in air at 300°; the catalyst obtained had a Fe/Cu/K2CO3 weight ratio of 10/0.2/0.25 and N 49 ppm.

L8 ANSWER 14 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1986:500282 CAPLUS
DOCUMENT NUMBER: 105:100282
TITLE: Hydrocarbons
INVENTOR(S): Wakushima, Kyoji; Sugimoto, Michio
PATENT ASSIGNEE(S): New Fuel Oil Development Technology Research Assoc., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 61044828	A2	19860304	JP 1984-165656	19840809

PRIORITY APPLN. INFO.: JP 1984-165656 19840809

AB Hydrocarbons are prepared by contacting **synthesis gas** with catalysts containing 10-90 weight% crystalline aluminosilicates obtained by dealumination using inorg. halides or oxyhalides and metals (or metal compds.) with CO-reducing activity. Thus, 10 g H-ZSM5 zeolite (SiO_2-Al_2O_3 mol ratio 34:1) was stirred in aqueous CsCl at 100° for 3 h, then **calcined** at 550° for 6 h to give Cs-ZSM-5 zeolite, which was treated with $SiCl_4$, then with 1 N HCl to give 69% dealuminated Cs-ZSM-5 zeolite (SiO_2-Al_2O_3 mol ratio 112:1), pellets of which were mixed with fused Fe to give the active catalyst. Passage of 2:1 H-CO mixture at 300°, 20 kg/cm^2 gauge, and 1.46 h^{-1} weight space velocity for 8 h resulted in 99% CO conversion, 71% selectivity to hydrocarbons, including 54% C5+ hydrocarbons (which contained 39% aroms.).

L8 ANSWER 15 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1986:482063 CAPLUS
DOCUMENT NUMBER: 105:82063
TITLE: Hydrocarbons
INVENTOR(S): Wakushima, Kyoji; Sugimoto, Michio
PATENT ASSIGNEE(S): New Fuel Oil Development Technology Research Assoc., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 61044829	A2	19860304	JP 1984-165657	19840809

PRIORITY APPLN. INFO.: JP 1984-165657 19840809

AB Hydrocarbons are prepared by contacting **synthesis gas** with catalysts composed of crystalline aluminosilicates with surface-deposited SiO_2 and having metals (or metal compds.) with CO hydrogenation activity. Thus, 10 g HZSM-5 zeolite (SiO_2-Al_2O_3 74:1 mol ratio) was refluxed in $Si(OEt)_4$ and BuOH at 60° for 2 h and **calcined** at 550° for 6 h to give a crystalline zeolite (SiO_2-Al_2O_3 mol ratio 75:1). Extrusion molding and mixing the zeolite with fused Fe gave the active catalyst. H-CO (2:1) was passed over the catalyst at 20 kg/cm^2 (gauge), 330°, and 1.46 h^{-1} weight space velocity for 5 h, resulting in 98% CO conversion and 70% selectivity to total hydrocarbons, of which 53% were $C\geq5$ hydrocarbons.

L8 ANSWER 16 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1986:40502 CAPLUS
DOCUMENT NUMBER: 104:40502
TITLE: In situ Moessbauer spectroscopic characterization of iron/alumina and iron/thoria **Fischer-Tropsch** catalysts
AUTHOR(S): Vaishnava, Prem P.; Ktorides, Petros I.; Montano, Pedro A.; Mbadcam, Ketcha J.; Melson, Gordon A.
CORPORATE SOURCE: Dep. Phys., North. Illinois Univ., DeKalb, IL, 60115, USA
SOURCE: Journal of Catalysis (1985), 96(2), 301-13
CODEN: JCTLA5; ISSN: 0021-9517
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Moessbauer spectroscopy was used to study in situ the transformation of

Fe/Al2O3 and Fe/ThO2 catalysts under different stages of **calcination**, reduction, carburization, and **Fischer-Tropsch** synthesis reactions. At room temperature the **calcined** Fe/Al2O3 catalyst is composed of Fe2+ ions strongly interacting with the alumina support, and .apprx.10% of bulk α-Fe2O3. The **calcined** Fe/ThO2 samples consists of a bulk phase of α-Fe2O3. After reduction in flowing H at 400°, the Fe/Al2O3 catalyst contains .apprx.70% α-Fe and 30% of FeAl2O4 (a spinel phase). The **calcined** sample of Fe/ThO2 is reduced completely to α-Fe in flowing H2 at 400° in 9 h. When the reduced Fe/Al2O3 catalyst is carburized at 250° in **synthesis gas** (2H2/CO), all the α-Fe is converted to an interstitial alloy of a composition resembling the Haegg carbide and ε'-Fe2.2C. Carburization of the reduced Fe/ThO2 catalyst at 250° in 2H2/CO converted .apprx.50% of the α-Fe to χ-Fe5C2. However, after the **Fischer-Tropsch** synthesis reaction, the remaining amount of α-Fe in the catalyst is also charged ot χ-Fe5C2. The product distribution in the case of Fe/Al2O3 reveals a high selectivity for unsatd. and saturated C3 hydrocarbons. For the Fe/ThO2 catalyst, **calcined** for 24 h, a high selectivity for C5-C10 hydrocarbons is shown. For the sample Fe/ThO2 catalyst, **calcined** for 24 h, a high selectivity for C5-C10 hydrocarbons is shown. For the sample Fe/ThO2 **calcined** for 48 h, a high selectivity for C5 hydrocarbon and oxygenated products is obtained.

L8 ANSWER 17 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1985:187632 CAPLUS
DOCUMENT NUMBER: 102:187632
TITLE: Syngas conversion on **calcined** iron-titanium-zinc-potassium catalysts (Part 2). Direct conversion of **synthesis gas** to light olefins in the slurry phase
AUTHOR(S): Okabe, Kiyomi; Sano, Tsuneji; Saitoh, Kenji; Hagiwara, Hiroyuki; Araki, Michio; Shimomura, Kinya; Ogawa, Kiyoshi; Hosoya, Tadasuke; Takaya, Haruo; Bandoh, Kenichiro
CORPORATE SOURCE: Catal. Div., Natl. Chem. Lab. Ind., Ibaraki, 305, Japan
SOURCE: Sekiyu Gakkaishi (1985), 28(2), 148-55
CODEN: SKGSAE; ISSN: 0582-4664
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The role of **calcination** temperature of Fe-Ti-Zn-K catalysts was investigated in the slurry-phase **Fischer-Tropsch** reaction at 10 atm, 300-325°, and H-CO ratio 1:1. A stable activity with 24-25% selectivity to C2H4 [74-85-1] and C3H6 [115-07-1] was obtained when the catalyst was **calcined** at >800°; deactivation took place below this temperature Changes in bulk components of the catalysts by **calcination**, reduction, and reaction were followed by x-ray diffraction. The surface concentration of Ti on the catalyst, as determined by XPS, increased with increasing **calcination** temperature although the bulk composition, as determined by x-ray fluorescence spectroscopy, hardly changed. Catalysts **calcined** at <800° were covered with a relatively irreducible shell containing Ti, which stabilized the active sites on the surface by prevention of carburization. It was suggested that the magnetite phase stabilized by this irreducible shell was responsible for the observed steady-state reaction.

L8 ANSWER 18 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1985:151783 CAPLUS
DOCUMENT NUMBER: 102:151783
TITLE: Syngas [**synthesis gas**] conversion

on **calcined** iron-titanium-zinc-potassium catalyst (Part 1). Effects of pretreatment conditions and pressure on the reaction in the fixed bed reactor

AUTHOR(S): Okabe, Kiyomi; Suzuki, Kunio; Ogawa, Kiyoshi; Saitoh, Kenji; Shimomura, Kinya; Araki, Michio; Takaya, Haruo; Bandoh, Kenichiro; Takami, Yasuo
CORPORATE SOURCE: Natl. Chem. Lab. Ind., Yatabe, 305, Japan
SOURCE: Sekiyu Gakkaishi (1985), 28(2), 187-90
CODEN: SKGSAE; ISSN: 0582-4664
DOCUMENT TYPE: Journal
LANGUAGE: Japanese

AB Hydrogenation catalysts for CO in manufacture of light olefins at 340-350° and 10-50 atm in a fixed bed are Fe-Ti-Zn-K **calcined** 15 h at 1050°. On a catalyst reduced at 500° in H, high CO conversion was not obtained until the pressure was increased to 30 atmospheric; high CO conversions were obtained at 10 atmospheric by pretreatment with CO or **synthesis gas** at 350° followed by the reduction at 350°. The main phase of the spent catalyst, identified by x-ray diffraction, was Fe2O3 over which high conversion of CO was obtained.

L8 ANSWER 19 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1985:134847 CAPLUS
DOCUMENT NUMBER: 102:134847
TITLE: Preparation of hydrocarbons
PATENT ASSIGNEE(S): New Fuel Oil Development Technology Research Assoc., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 59199790	A2	19841112	JP 1983-73881	19830428
PRIORITY APPLN. INFO.:			JP 1983-73881	19830428

AB Hydrocarbons in high yield are prepared by converting a **synthesis gas** in the presence of an Fe-containing catalyst having a carrier containing Mn oxide or V oxide. Thus, aqueous NH3 was added to aqueous Mn(NO3)2 solution until pH 9.0 to form Mn(OH)2 gel, which was filtered, washed, dried at 130° for 3 h, and **calcined** at 500° for 3 h to prepare finely powdered Mn oxide. The oxide was immersed in Fe(NO3)3 solution and **calcined** at 500° for 3 h more to obtain a catalyst containing 10 weight% Fe2O3 (based on Mn oxide). The catalyst was reduced in H at 1 atm and 350° for 1 h [superficial gas space velocity (GHSV) 1000 h-1] followed at 400° for 3 h, and then reacted with **synthesis gas** (H-CO mol ratio 2:1) at 290°, 40 kg/cm2, and GHSV 500 h-1 to obtain hydrocarbons comprising CH4 25, C2-4 21, and C5-20 54 weight% (at 90% CO conversion), vs. 54, 46, and 0% (at 5% conversion), resp., for a reaction using a catalyst without Fe2O3.

L8 ANSWER 20 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1984:632953 CAPLUS
DOCUMENT NUMBER: 101:232953
TITLE: Studies on the reduction of the iron(III) oxide-molybdenum(VI) oxide system and its interaction with **synthesis gas** (carbon monoxide + molecular hydrogen)
AUTHOR(S): Maiti, G. C.; Malessa, R.; Baerns, M.

CORPORATE SOURCE: Ruhr Univ. Bochum, Bochum, D-4630, Fed. Rep. Ger.
SOURCE: Thermochimica Acta (1984), 80(1), 11-21
CODEN: THACAS; ISSN: 0040-6031
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The structural changes of Fe-Mo mixed oxide systems during **calcination** and reduction were studied. The oven-dried precipitated mass contains excess Mo as polymolybdic ions, which is transformed into Fe2(MoO4)3 and MoO3 upon **heat-treatment** at >400°. The reduction of Fe2(MoO4)3 proceeds through the formation of FeMoO4 and FeMoO3. Complete reduction gives a mixed crystal of Fe and Mo. MoO3 is also simultaneously reduced to elemental Mo through the formation of MoO2 as an intermediate oxide. The interaction of the reduced mass with **synthesis gas** indicates that the Fe-Mo mixed crystal is active for CO hydrogenation. This mixed lattice is also stable towards carburization in the presence of **synthesis gas**
.

L8 ANSWER 21 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1984:71098 CAPLUS
DOCUMENT NUMBER: 100:71098
TITLE: Aromatic hydrocarbon mixture
PATENT ASSIGNEE(S): New Fuel Oil Development Technology Research Assoc., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 12 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 58192833	A2	19831110	JP 1982-73452	19820504
JP 02049290	B4	19901029		

PRIORITY APPLN. INFO.: JP 1982-73452 19820504

AB Aromatic hydrocarbons were prepared by a modified **Fischer-Tropsch** synthesis over compound catalysts containing metal or metal oxide and aNa2O.[bBi2O3.cM2O3].dSiO2 [0.1 ≤ a ≤ 0.6, b + c = 1, b > 0, c ≥ 0, d = 20, 80, 200, 400, M = (e.g.) Al, Fe, Ru, or La] at 200-500° and ≤300 atmospheric Thus, an aqueous mixture of water glass and BiCl3 (adjusted to pH .apprx.9) and PrNH2 and PrBr was stirred 3 days at 160°, washed, dried (12 h at 110°), and **calcined** (3 h at 550°) to yield 0.6 Na2O.Bi2O3.80SiO2 (I). I was mixed with 75:25 (weight) ZnO-Cr oxide (II) at 20:80 I-II weight ratio to yield the compound catalyst. **Synthesis gas** (1:1 H-CO) was then contacted with the catalyst (400°, 50 kg/cm2, space velocity 1000 h-1) to yield a hydrocarbon mixture containing CH4 5, C2-4 21, C5-10 aliphatic 23, and aromatic hydrocarbons 51 weight% at 66% conversion, compared with a product containing mainly MeOH and CH4 in the absence of I. Fe oxide and Fe2O3-TiO2-ZnO-K2O were also used in place of II. A catalyst in which Na was exchanged for 0.1 weight% Ru and a I-Fe2O3 composition containing Ru, Rh, Pt, or Pd were also used.

L8 ANSWER 22 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1981:142569 CAPLUS
DOCUMENT NUMBER: 94:142569
TITLE: **Fischer-Tropsch** catalysts and their use
INVENTOR(S): Boersma, Michael Adriaan Maria
PATENT ASSIGNEE(S): Shell Internationale Research Maatschappij B. V., Neth.
SOURCE: Ger. Offen., 16 pp.

```
                              CODEN: GWXXBX
DOCUMENT TYPE:                Patent
LANGUAGE:                     German
FAMILY ACC. NUM. COUNT:       1
PATENT INFORMATION:

     PATENT NO.         KIND  DATE          APPLICATION NO.   DATE
     ---------------    ----  --------      ---------------   --------
     DE 3026390          A1   19810129      DE 1980-3026390   19800711
     DE 3026390          C2   19891102
     NL 7905480          A    19810115      NL 1979-5480      19790713
     NL 190574           B    19931201
     NL 190574           C    19940502
     CA 1143713          A1   19830329      CA 1980-350342    19800422
     BE 884143           A2   19810105      BE 1980-9878      19800703
     AU 8060343          A1   19810115      AU 1980-60343     19800711
     AU 535352           B2   19840315
     FR 2460711          A1   19810130      FR 1980-15466     19800711
     FR 2460711          B1   19860801
     GB 2053713          A    19810211      GB 1980-22790     19800711
     GB 2053713          B2   19830420
     JP 56021647         A2   19810228      JP 1980-94054     19800711
     JP 63052936         B4   19881020
     ZA 8004187          A    19810729      ZA 1980-4187      19800711
PRIORITY APPLN. INFO.:                   NL 1979-5480      19790713
AB   An Al2O3 support is impregnated with an aqueous solution of Fe and Mg salts to
     obtain 40-60 Fe and 7.5-30 weight parts Mg/100 weight parts Al2O3.  Sometimes,
a
     Cu salt and a K salt are added to obtain 0.5-5 Cu reduction promoter and 1-5
     weight parts selectivity promoter/100 parts Al2O3.  After impregnation, the
     catalyst is dried, calcined at 700-1200°, and reduced in
     a H-containing gas at 250-350°.  The catalyst is used for the
     Fischer-Tropsch synthesis of hydrocarbons from a H-CO
     mixture having a H-CO mole ratio <1:1 at 250-350°, 20-50 bars, and
     space velocity 500-2500 L gas/L catalyst-h.  Thus, an Al2O3 substrate was
     impregnated with Mg(NO3)2, dried at 120°, calcined 2 h at
     400°, impregnated with aqueous Fe(NO3)3, Cu(NO3)2, and KNO3, dried at
     120°, calcined 16 h at 800°, and reduced at
     325°.  The resulting catalyst contained Fe 50, Mg 20, Cu 2.5, K 4,
     and Al2O3 100 weight parts.  The catalyst was used for production of
hydrocarbons
     from a synthesis gas having a H-CO ratio of 0.6:1 at
     280°, 30 bars, and space velocity of 1000 L/L-h.  The conversion
     after 25 h was 93%.  During further service for total 3150 h, temperature was
     gradually increased to 305°, space velocity was decreased to 350
     L/L-h, and conversion was decreased to 80%.

L8   ANSWER 23 OF 24  CAPLUS  COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER:             1981:142568  CAPLUS
DOCUMENT NUMBER:              94:142568
TITLE:                        Fischer-Tropsch catalysts and
                              their use
INVENTOR(S):                  Boersma, Michael Adriaan Maria; Schaper, Lambert
PATENT ASSIGNEE(S):           Shell Internationale Research Maatschappij B. V.,
                              Neth.
SOURCE:                       Ger. Offen., 13 pp.
                              CODEN: GWXXBX
DOCUMENT TYPE:                Patent
LANGUAGE:                     German
FAMILY ACC. NUM. COUNT:       1
PATENT INFORMATION:

     PATENT NO.         KIND  DATE          APPLICATION NO.   DATE
     ---------------    ----  --------      ---------------   --------
```

DE 3026175	A1	19810129	DE 1980-3026175	19800710
DE 3026175	C2	19900927		
NL 7905479	A	19810115	NL 1979-5479	19790713
NL 190603	B	19931216		
NL 190603	C	19940516		
CA 1140909	A1	19830208	CA 1980-350343	19800422
BE 884144	A2	19810105	BE 1980-9879	19800703
AU 8060297	A1	19810115	AU 1980-60297	19800710
AU 538927	B2	19840906		
FR 2460712	A1	19810130	FR 1980-15376	19800710
FR 2460712	B1	19830218		
GB 2053016	A	19810204	GB 1980-22651	19800710
GB 2053016	B2	19830413		
JP 56021648	A2	19810228	JP 1980-93390	19800710
JP 63052937	B4	19881020		
ZA 8004155	A	19810729	ZA 1980-4155	19800710

PRIORITY APPLN. INFO.: NL 1979-5479 19790713

AB A SiO_2 catalyst support is impregnated with an organic solution of Fe and Cr salts to obtain 20-35 Fe and 0.5-5 weight parts Cr/100 weight parts SiO_2. Optionally, a K salt is added to obtain 1-5 weight parts K promoter/100 parts SiO_2. After impregnation, the catalyst is dried, **calcined** at 350-700°, and reduced in a H-containing gas at 350-500°. The resulting catalyst is used for the **Fischer-Tropsch** synthesis of hydrocarbons from a H-CO mixture having a H/CO mole ratio <1 at 250-350°, 20-50 bars, and space velocity 500-2500 L gas/L catalyst-h. Thus, a SiO_2 substrate was impregnated with a KNO_3 solution, dried at 1250°, **calcined** 2 h at 400°, impregnated with an organic solution containing Fe $(NO_3)_3$ and $Cr(NO_3)_3$, dried at 1250°, **calcined** 2 h at 500°, and reduced at 400°. The resulting catalyst contained Fe 25, Cr 1, K 2, and SiO_2 100 weight parts. The catalyst was used for production of hydrocarbons from a **synthesis gas** having a H/CO ratio of 0.5:1 at 280°, 30 bars, and space velocity of 1000 L/L-h. The conversion after 25 and 500 h was 91 and 90%, resp. To maintain the conversion of 90% for another 500 h, the temperature was gradually increased to 290°.

L8 ANSWER 24 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER:	1950:58503 CAPLUS
DOCUMENT NUMBER:	44:58503
ORIGINAL REFERENCE NO.:	44:11067f-h
TITLE:	Catalyst for **Fischer-Tropsch** synthesis
PATENT ASSIGNEE(S):	Standard Oil Development Co.
DOCUMENT TYPE:	Patent
LANGUAGE:	Unavailable
FAMILY ACC. NUM. COUNT:	1
PATENT INFORMATION:	

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
GB 641266		19500809	GB	

AB A hydrocarbon-synthesis catalyst is prepared by mixing 5% $K_4Sb_2O_7$ with 95% Fe_3O_4 as follows: The mixture is slurried in EtOH, dried, ground, and **calcined** in air at 1000°F. for 4 1/2 hours. The catalyst is reduced before use. High yields of hydrocarbons and oxygenated compds. are found when equimolar H + CO **synthesis gas** is passed over this catalyst at 550°F. and 150 lb./sq. in. with space velocity of 200 volume/volume hr.